

Careers in Geospatial Technology

Objective: To develop an interest in geospatial technology (GPS, GIS, remote sensing, etc.) as a career and inform students of the current demand and growth in this field.

Background:

Geospatial technology is a combination of technologies (GPS, GIS, remote sensing, etc.) used to collect, map and manipulate information to describe the location and attributes of objects. It is estimated that geospatial technologies will have annual market revenue of \$757 billion by 2017 (RNCOS, 2005). In 2004, the Department of Labor announced investments of approximately \$6 million to address the workforce needs of this industry. Geospatial technology has also been included as one of fourteen industries in President George W. Bush's High Growth Job Training Initiative.

The supply of well-trained and well-educated GIS professionals in the U.S. has not kept up with the market demand. Currently the shortfall is estimated at 3,000 – 4,000 people per year in the U.S. alone (Board on Earth Sciences and Resources, 2006). Geospatial occupations were identified as one of twelve high growth employment sectors for the 2000-2010 period and it was also identified as one of the three most important emerging and evolving employment fields in the country by the Department of Labor.

There are many different available careers in geospatial technology and new opportunities are rapidly developing. Current careers include climatologists, computer specialists, crime analysts, educators, environmentalists, geographers, geologists, and software engineers. Specific GIS careers include analysts, coordinators, developers, managers, and technicians. Other careers using geospatial technology include cartographers, photogrammetrists, surveyors, sales representatives, planners (city), aerial photographers, geoscientists, drafters (civil, mechanical, electrical), engineering technicians (mechanical, industrial, environmental) and mapping technicians.

Depending on the specific career, the salary range can vary drastically. Lower level jobs may begin at \$25,000, whereas higher level jobs may begin at \$50,000 or more. The amount of education and experience a person has also affects the salary. Currently many community colleges and universities are developing majors and departments with an emphasis on geospatial technology. Industry members identify core skills such as problem solving, basic knowledge about GIS operation, verbal/written communication skills, positive outlook and commitment to ongoing learning as important.

Geospatial technology specialists may work in local, state, and federal government, or private and non-profit businesses. These businesses may include agriculture, biology, forestry, mining, real estate, transportation, urban planning and development. As this technology becomes more widely used, the demand for employees will continue to grow.

For More Information:

www.geospatialcareers.net

http://www.gis.com/careers/geospatial_career.html

<http://www.doleta.gov/business/>

www.careervoyages.gov

CAREERS ACTIVITY

REPORTS:

Assign or let each student pick an occupation in geospatial technology to research. Then have them write a short report about this occupation and present it to the group. Lead a discussion after all the presentations about the different occupations. Ask the students which careers they would be interested in or what information they found interesting.

Components of the report may include a description or definition of the occupation, amount of education required, average annual salary, interesting facts, type of company or business this occupation would work for, positive and negative aspects of the occupation, etc.

Another research based activity would be to have students look at different colleges and see what curriculum they offer for these career fields.

GUEST LECTURER:

Invite a community member(s) that uses some aspect of geospatial technology to talk to the group about their job, how they got started, what they like about their job. Have them share interesting stories and/or examples about what makes their job important to the community.

If possible, see if the students can job shadow a person in geospatial technology and see first hand how this technology is used.

An interesting guest speaker would be a farmer that used precision agriculture technology on his farm. He/she could discuss why/how they started using it, how it has benefited their farm, and positive/negative aspects of it.

CATEGORIES:

Have the youth brainstorm a list of industries that use geospatial technology (ex. Agriculture). From there, have them develop a list of careers that would fall into each category. Discuss how some career may fall into more than one industry.

Example:

Industry	Agriculture	Business	Education
Careers	Farmer Agronomist Chemical/Fertilizer applicator Horticulturist	Human Resources Journalism Software Developer Engineer Surveyor	Instructor (Professor, Teacher, Trainer) Extension Educator

Included is an instructor help sheet.

Industries and Careers

Agriculture	Business	Education	Environment	Geography	Government & Military	Natural Resources	Public Safety/Health	Recreation
Farmer	Human Resources	Instructor (Professor, teacher, trainer)	Climatologist	Real Estate Agent	Analyst	Park Ranger	Firefighter	Hiker
Agronomist	Journalism		Meteorologist	Photogrammist	Pilot	Geologist	City Planner/ Zoning	Fishermen
Chemical & Fertilizer Applicator	Software Developer	Extension educator	Seismologist	Geographer	Astronaut	Miner	Health Department	Hunters
Horticulturist	Surveyor	School Administration (Superintendent, Principal)	Botanist	Cartographers	Homeland Security		Crime analyst/ investigators	Mountain Climbers
Soil Scientist	Engineer	Historian	Ecologist	Mapmakers	CIA/FBI employees		Emergency Response	Tourism Director
Precision Ag Specialist	Account Manager		Biologist	Drafter	Legislators/ Politicians		Police Officers	
Veterinarian	Sales Representative		Conservation Agents		Assessor		Transportation Director	
	Bank Managers				Rural Developer			
	Electricity, water, sewer managers							
	Lawyers							
	Insurance Agents							
	Postal/Mailing Workers							
	Land Developers							

Some careers may fall into more than one category.

